

REMARKS

Claims 1-59 are pending in the application. Claims 39-59 have been added and find support in the specification, for example, at pages 5-7 of the specification and in the previously pending claims.

Claim 10 has been amended to correct a typographical error. Prior to the amendment, claims 9 and 10 were identical. Claim 10 is supported, for example, at page 9, line 7 of the specification.

I. 35 U.S.C. 102(b) Rejections

A. Motier et al.

Reconsideration is requested of the rejection of claims 1-38 under 35 U.S.C. §102(b) in view of US Patent 3,884,856 (Motier et al.).

Claim 1 is directed to a film-forming composition comprising a continuous aqueous phase and a dispersed phase containing a polymer or prepolymer and a coalescent aid comprising an ester. The ester of the coalescent aid has the formula RCOOX wherein R and X are hydrocarbyl or substituted hydrocarbyl and at least one of R or X comprises at least two unsaturated carbon-carbon bonds.

The term, coalescent aid, is a term which is understood by persons of ordinary skill to refer to "a solvent with a high boiling point which, when added to a coating, aids in film formation via temporary plasticization (softening) of the vehicle."¹ Examples 1 and 5 of Applicants' specification, for example, demonstrate how applicants' coalescent aid perform in this respect relative to various conventional coalescent aids.

Claim 1, therefore, requires that the film-forming composition comprise "a solvent with a high boiling point which, when added to a coating, aids in film formation via temporary plasticization of the vehicle." In addition, claim 1 requires that this solvent be an ester corresponding to the formula RCOOX wherein R and X are hydrocarbyl or substituted hydrocarbyl and at least one of R or X comprises at least two unsaturated carbon-carbon bonds.

¹Paint/Coatings Dictionary, 1978, Federation of Societies for Coatings Technology, a copy of which is attached.

In contrast, Motier et al. disclose an electrocoating composition bath prepared by the dispersion in water of (a) a partially esterified styrene-maleic anhydride copolymer and (b) a carboxyl functional epoxy resin which has been esterified with a fatty acid, preferably those derived from drying or semi-drying of oils.² These resin solids usually constitute about 5 to 30 percent by weight of the bath.³ In addition, the composition contains a coupling solvent, *i.e.*, a **coalescent aid**, such as oxygenated hydrocarbon liquids having up to 12 carbon atoms, lower alkyl ethers of a lower alkylene glycol such as monopropylether of propylene glycol, n-butyl ether of ethylene glycol, and ethyl ether of diethylene glycol. Other suitable solvents include n-butanol and lower molecular weight hydrocarbons having up to about 12 carbon atoms such as toluene, xylene, and petroleum solvents.⁴ In Example 3, Motier et al. dissolve the styrene-maleic anhydride resin and the epoxy ester resin in 2-butoxyethanol, combine the two solutions, and then dilute with water to form the electrodeposition bath.

The electrophoretic coating composition disclosed in Motier et al. does not satisfy the requirements of claim 1. Although Motier et al.'s coating composition contains a coalescent aid, their coalescent aid does not meet the requirements specified by claim 1, *i.e.*, that it be an ester corresponding to the formula RCOOX wherein R and X are hydrocarbyl or substituted hydrocarbyl and at least one of R or X comprises at least two unsaturated carbon-carbon bonds. And, while Motier et al. include in their composition an epoxy resin which has been esterified with a fatty acid, this component does not function as a coalescent aid; instead, it is a solids component of the coating which is dissolved in the coalescent aid. See, for example, Examples 2 and 3.

Claim 34 is directed to a film-forming composition comprising, among other things, a coalescent aid comprising an ester derived from a fatty acid contained in an oil found in a plant or animal, having the formula RCOOX wherein R and X are hydrocarbyl

²Motier et al., at col. 2, lines 9-33.

³Motier et al., at col. 4, lines 50-53.

⁴Motier et al., at col. 4, lines 37-49.

or substituted hydrocarbyl and at least one of R or X comprises at least two unsaturated carbon-carbon bonds. For reasons similar to those outlined above with respect to claim 1, Motier et al. fail to disclose such a composition.

Claims 2-33 and 35-59 depend from claim 1 or 34, and are not anticipated by Motier et al. for the same reasons as those stated with respect to the claim from which they respectively depend.

B. Craig

Reconsideration is requested of the rejection of claims 1-38 under 35 U.S.C. §102(b) in view of US Patent 4,966,939 (Craig).

Craig discloses a polyacrylate dispersion prepared from the polymerization of acrylic esters and mixtures thereof in the presence of a substantially water soluble monomer having conjugated unsaturation. The resultant polyacrylate latices are said to be low viscosity, shear stable, water-insoluble and reproducible and are said to have good flow behavior, low grit levels and a fine particle size.⁵

Unlike claim 1, Craig does not disclose a film-forming composition comprising a coalescent aid having the formula RCOOX wherein R and X are hydrocarbyl or substituted hydrocarbyl and at least one of R or X comprises at least two unsaturated carbon-carbon bonds. Stated another way, Craig does not disclose a film-forming composition having a solvent with a high boiling point which, when added to a coating, aids in film formation via temporary plasticization of the vehicle wherein the solvent meets the requirements of claim 1. In his Example 8, Craig describes the preparation of a flat latex paint formulation comprising his polyacrylate latex. Significantly, in this formulation he included diethylene glycol monobutyl ether acetate which served as a coalescent aid, and diethylene glycol monobutyl ether acetate does not satisfy the requirements imposed by claim 1 for the coalescent aid.⁶

⁵ Craig at col. 1, line 63 to col. 2, line 6.

⁶Craig at column 6, line 51.



Claim 34 is directed to a film-forming composition comprising, among other things, a coalescent aid comprising an ester derived from a fatty acid contained in an oil found in a plant or animal, having the formula RCOOX wherein R and X are hydrocarbyl or substituted hydrocarbyl and at least one of R or X comprises at least two unsaturated carbon-carbon bonds. For reasons similar to those outlined above with respect to claim 1, Craig fails to disclose such a composition.

Claims 2-33 and 35-59 depend from claim 1 or 34, and are not anticipated by Craig for the same reasons as those stated with respect to the claim from which they respectively depend.

C. Bumanlag

Reconsideration is requested of the rejection of claims 1-38 under 35 U.S.C. §102(b) in view of US Patent 5,753,742 (Bumanlag).

Bumanlag discloses dispersing a liquid acrylic polymer with a plasticizer, having a very low volatility (*i.e.*, a **coalescent aid**) into water and subsequently blending that dispersion with another high solids, high molecular weight polymeric dispersion in water (preferably a latex) for use as a coating, sealant, caulk or adhesive.⁷ Bumanlag identifies a long list of plasticizers⁸ which may be used in his formulation, but none of them meet the requirements of the coalescent specified by claim 1. The amount of plasticizer used is said to desirably be about 20 wt. percent to about 50 weight percent of the blend of the liquid acrylic polymer and plasticizer.⁹

In addition to the plasticizer, Bumanlag's formulations also contain an emulsifier. Bumanlag identifies a long list of exemplary anionic surfactants, cationic surfactants, nonionic surfactants, block copolymers of ethylene oxide and propylene oxide, as well as combinations thereof. Amongst this long list, Bumanlag identified ethylene oxide

⁷Bumanlag at column 1, lines 41-45.

⁸Bumanlag, at column 4, lines 33-55.

⁹Bumanlag at column 4, lines 61-65.

condensates of linoleic acid, lauric acid or caproic acid as potential emulsifiers.¹⁰

Bumanlag provides no other details, however, concerning the ethylene oxide condensate of linoleic acid, such as the molecular weight. He does not suggest the use of a specific composition or an amount which would function as coalescent aid; if anything, he suggests the contrary since he states "the emulsifiers are used in amounts effective for achieving a stable dispersion of the polymer and plasticizer in an aqueous medium."¹¹

Claim 34 is directed to a film-forming composition comprising, among other things, a coalescent aid comprising an ester derived from a fatty acid contained in an oil found in a plant or animal, having the formula RCOOX wherein R and X are hydrocarbyl or substituted hydrocarbyl and at least one of R or X comprises at least two unsaturated carbon-carbon bonds. For reasons similar to those outlined above with respect to claim 1, Bumanlag fails to disclose such a composition.

Also, it should be noted that Bumanlag U.S. Patent No. 5,753,742 issued on May 19, 1998, less than one year prior to the priority date claimed by applicants, *i.e.*, March 22, 1999 (applicants claim the benefit of provisional application 60/125,446, filed March 22, 1999) and that applicants are submitting with this Amendment a declaration under Rule 131 by Michael Van De Mark averring to a date of invention before July 31, 1996, the date identified on Bumanlag, U.S. Patent No. 5,753,742, as being the earliest possible priority date of the information disclosed in U.S. Patent No. 5,753,742.

Claims 2-33 and 35-59 depend from claim 1 or 34, and are not anticipated by Bumanlag for the same reasons as those stated with respect to the claim from which they respectively depend.

¹⁰Bumanlag at column 5, lines 21-23.

¹¹Bumanlag at column 5, lines 32-34.

II. 35 U.S.C. 102(e) Rejections

A. Saam

Reconsideration is requested of the rejection of claims 1-38 under 35 U.S.C. §102(e) in view of US Patent 6,177,510 (Saam).

Saam matured from an application, filed April 12, 1999. According to the face of the Saam patent, no priority is claimed from an earlier application.

In contrast, the present application was filed on March 21, 2000 but claims and is entitled to the benefit of the filing date of application no. 60/125,446, which was filed on March 22, 1999. Thus, US Patent 6,177,510 was not filed in the United States or published before the invention thereof by the applicant for patent and, as such, the rejection under 35 U.S.C. 102(e) in view of Saam is not proper.

B. Rauls

Reconsideration is requested of the rejection of claims 1-38 under 35 U.S.C. §102(e) in view of US Patent 6,156,833 (Rauls).

Applicants are submitting with this Amendment a declaration under Rule 131 by inventor Michael Van De Mark averring to a date of invention before February 12, 1999, the date identified on U.S. Patent No. 6,156,833 as being the earliest possible priority date of the information disclosed in U.S. Patent No. 6,156,833.

III. 35 U.S.C. 103(a) Rejections

Reconsideration is requested of the rejection of claims 1-38 under 35 U.S.C. §103(a) in view of Motier et al. (U.S. Patent 3,884,856), or Craig (U.S. Patent No. 4,966,939) or Bumanlag (U.S. Patent No. 5,753,742) or Rauls (U.S. Patent No. 6,156,833) or Saam (U.S. Patent No. 6,177,510).

For the reasons pointed out above, neither Rauls nor Saam nor Bumanlag is properly citable against the invention defined by claims 1-38.

Motier et al. and Craig lead a person of ordinary skill away from and not to the claimed invention. Each uses conventional coalescent aids, implying there is no reason or need for improvement. Although they include unsaturated esters in their

composition, their resin chemically incorporates the ester-functionality and neither discloses a film-forming composition having a solvent with a high boiling point which, when added to a coating, aids in film formation via temporary plasticization of the vehicle wherein the solvent meets the requirements of claim 1 or claim 34. Instead, each forms a resin which chemically incorporates the ester-functionality and uses conventional coalescent aids.

Bumanlag similarly leads a person of ordinary skill away from and not to the claimed invention. Bumanlag suggest the use of conventional plasticizers in their formulation, and although ethylene oxide condensates of linoleic acid are identified as one of many possible emulsifiers, Bumanlag attach no particular significance to it and provide insufficient information such as molecular weight or amount which would enable it to meaningfully serve as a coalescent aid.

To establish a prima facie case of obviousness, three basic criteria may be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). The Office states that it would be obvious to one of ordinary skill in the art to formulate aqueous compositions according to these references (Motier et al.) comprising a polymer in the dispersed phase and the required ester *disclosed by these references* also in the dispersed phase (Paper No. 6, page 3). As discussed above, however, the cited references do not individually, or in combination, suggest the invention defined by claims 1-38.

The cited references also fail, individually and in combination, to suggest the invention defined by claims 1 and 34 and each of the claims which depend respectively therefrom. Each of these claims requires that the coalescent aid comprise the defined ester. In addition, the dependant claims introduce a variety of requirements which are

not disclosed by the cited references. For example, claim 3 further requires that the "R" and "X" moieties of the ester, in combination, comprise no more than about 35 carbon atoms. Claim 20 further requires that the coalescent aid be a mixture of materials with the ester being at least about 5 wt.% of the mixture. Claim 39 further requires that at least 90 wt.% of the ester be dissolved in the particulate polymer. These combinations of features are neither disclosed nor suggested by the cited references.

VERSION WITH MARKINGS SHOWING CHANGES MADE

IN THE SPECIFICATION:

On page 1, line 2 the following paragraph was added:

-- REFERENCE TO RELATED APPLICATIONS

This application claims priority from U.S. provisional application Serial No. 60/125,446, filed on March 22, 1999. --.

IN THE CLAIMS:

Claim 10 was amended as shown:

10. (once amended) The film-forming composition of claim 1 wherein the ester is **[an ethylene] a diethylene** glycol monoester derived from a fatty acid of soybean oil.

Claims 39 through 59 are new.

CONCLUSION

In view of the foregoing remarks, it is respectfully submitted that claims 1-59 distinguish patentably over the art of record under 35 U.S.C. §102(b) and §102(e) and 35 U.S.C. §103(a). Favorable consideration and early allowance of all pending claims is requested. Applicants request a three month extension of time to and including April 1, 2002. A check for \$1,298.00 is enclosed (\$920.00 for the extension of time; \$378.00 for the additional claim fee). The Commissioner is hereby authorized to charge to any deficiency or overpayment of the required fee to Deposit Account No 19-1345.

Respectfully submitted,



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